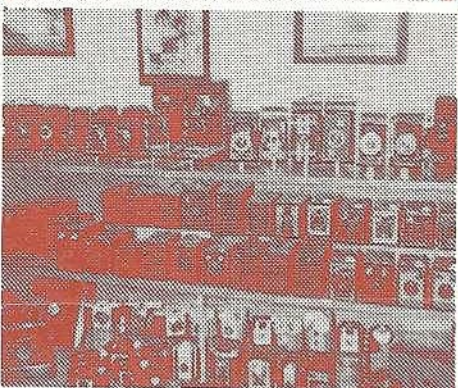
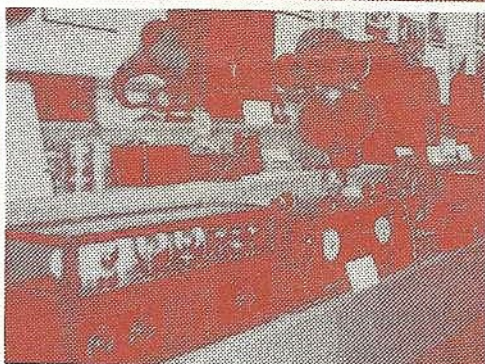
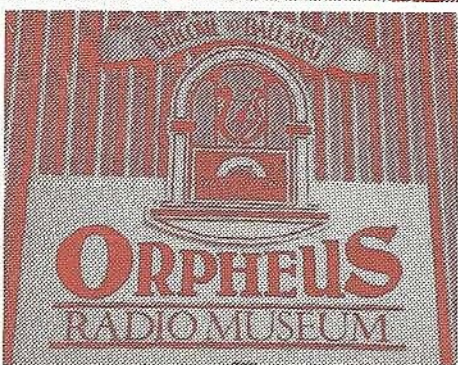
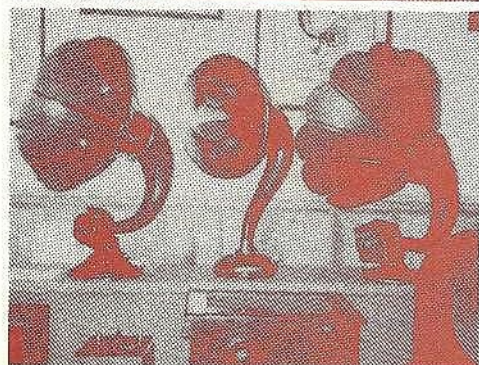
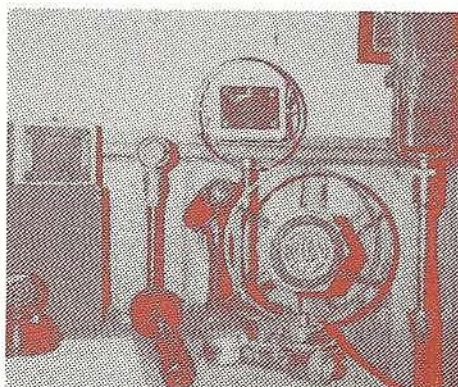


FEB 1991 01
91/08



B·A·R·G NEWS



© Monthly Newsletter of the
Ballarat Amateur Radio Group

9/1/02 02

BALLARAT AMATEUR RADIO GROUP INCORPORATED OFFICERS 1990-1991

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Imm. Past President:	GORDON CORNELL	VK3KGC	392427	391135
Vice President:	TOM GEORGE	VK3TOM	355662	327234
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Technical Officer	DICK ANTOSIEWICZ	VK3AEX	323273	321818
Memb. Representative:	MARY CURNOW	VK3NMC	301927	
	REG CARTER	VK3CAZ		

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Awards Manager:	MAURIE BALL	VK3XEX	422245	
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WICEN Committee:	GORDON CORNELL	VK3KGC	392487	391135
	TOM GEORGE	VK3TOM	355662	327234
	GEOFF SMITH	VK3ADB	332112	321719
Technical Committee:	MERV HOOLEY	VK3KAW		311317
	IAN McDONALD	VK3AXH		311317
	DICK FORRESTER	VK3VU	357663	391001
	DAVID McCONNELL	VK3YNB		
Newsletter Editors:	BOB TERRILL	VK3BNC	395317	391001
	HARRY HEKKEMA	VK3KGL	357563	391001

Repeaters: VK3RBA – 146.750 Voice. Mt. Buninyong (ch. 3)
VK3RBS – 146.900 Voice. Smeaton Hill (ch. 6)
VK3RPC – 147.575 Packet. Mt. Warrenheip

Club Net: ON 3.5610 Mhz. SSB +/- QRM
Every Thursday at 8 p.m.

B.A.R.G. meets on the **LAST FRIDAY** in every month except December at the Ballarat Education Centre, Hopetoun St., Ballarat at 7.30 p.m.

Committee meetings are held at the Education Centre on the Wednesday two weeks prior to the Club meeting at 7.30 p.m. Executive committee members are expected to attend and any club member with business for discussion is welcome.

All correspondence to: The Secretary, BARG Inc., P.O. Box 216E, Ballarat East, 3350.

Applications for Awards to: Maurie Batt, RSD, Rokewood Junction, 3351.



CNR. RING RD. & WESTERN HWY BALLARAT
(OPEN 10AM - 5 PM 7 DAYS A WEEK)

FEATURES

- GRAMOPHONES • VINTAGE RADIOS • VISITORS PARTICIPATION
- MEMORABILIA • AUDIO DISPLAYS • DEMONSTRATIONS • CRYSTAL SETS

The "Orpheus Radio Museum" is operated by Richard and Sonja Wilson.
The collection includes their private collection, the 3BA collection and other items on loan to the museum.
The museum is run with the idea of preserving the history of radio in Australia and making it accessible to the public.
If anyone has any information or items of interest to the museum, would they please contact, or write to, the "Orpheus Radio Museum" RSD B98, Ballarat 3352. Telephone (053) 34 2513.
Let the public enjoy your piece of Radio History.

9/1/02 03

P R E S I D E N T S N O T E -----

Well here is it February already and the years activities are well underway. This month will see the commencement of the Novice classes with eight participants taking part. Thanks to Charlie and Doug VK3DCS and VK3KAY and others there will be a display at the Begonia Festival to promote the Amateur Radio hobby. The scramble is in full swing with all trying for points towards the annual award. Each Monday evening a small group of members are trying to find that elusive fox. If you want some fun, how about coming next Monday night.

This month also sees the Amateur exams. We have nine candidates attending. Lets hope the " coffee club " are successful this time as we are running out of coffee !!!!!

The club is also planning to take part in this years John Moyle contest. We will be looking for some support for this event and hope to have a successful time.

REMEMBER :- Its your club and its success depends on your participation.

SILENT KEY :- It is with regret the club advises that Jack Luke VK3DUZ of Creswick passed away on January 28th. Although Jack was not very active he will be remembered by many amateurs in the Ballarat area. The club extends sympathy to Jacks relatives and friends.

73's VK3AXH

SELECTING A DE-COUPLING CAPACITOR , ESPECIALLY AT VHF.

The selection of a capacitor for de-coupling purposes is unfortunately often made on the premise "the bigger the better" and the commonly available value of 1000 pF disc ceramic is promptly soldered into place with the result that instability and stray coupling lead to degraded performance.

A disc ceramic capacitor of 1000 pF with leads $\frac{1}{2}$ inch long has a self resonance of around 40 MHz and should not therefore be used as a bypass at 145 MHz.

The table will act as a guide in choosing reasonable values. The best bypassing is obtained when the capacitor is close to series resonance but this can only be exploited when the stage operates in a single frequency band.

APPROXIMATE RESONANT FREQUENCY		
Cap in pF	Fcy with $\frac{1}{2}$ in leads	Fcy with $\frac{1}{2}$ in leads
330	85 MHz	62 MHz
220	120	82
100	145	120
47	240	130
33	250	210
22	230	235
15	400	300
10	530	390
6.8	600	470
1000	75	42
10,000	14	12

The best way out of the problem is to use a "dip oscillator" to check the resonant frequency of each capacitor before building it into a piece of equipment as a bypass.

If a likely value capacitor is chosen and its leads are cropped to the length required by the layout then joining the ends with a spot of solder will permit the parallel resonant frequency of the resulting circuit to be found with a "dip osc". For all practical purposes the series resonant frequency will be the same value.

If the resonant frequency is below the operating frequency either a smaller value of capacitor is required or leads of lower inductance.

9/1/02 04

Something for the hot Summer nights. *****

Jupiter on your Shortwave Receiver.

Radio astronomy is not something most amateurs think they can do, but if your receiver can tune to around 21Mhz you can listen to emissions from Jupiter.

The source of the decametric signals is not clear. It seems to involve plasma oscillations -quiverings of the thin gas of electrons trapped in Jupiters magnetic field, affected in complex ways by the planets ionosphere and atmosphere and volcanically active moon "Io".

The radio energy emerges in three well defined beams that sweep around the sky light house style with Jupiters rotation of about 10 hours. When the beams are active they regularly brush across the earth.

The signals are best between 18 and 22Mhz with the strongest around 21Mhz. Tune your receiver to a quiet spot free of artificial interference. Jupiter's decametric emissions sound like ocean waves coming about one to three times a second. (Whoosh, whoosh, whoosh.)

Their intensity swells to a maximum that lasts for seconds-sometimes minutes then fades away.

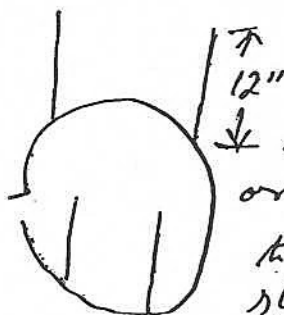
Don't be discouraged if you don't hear anything the first try, the emissions have to be active and one of the beams sweeping the earth. Experience has shown about a 1 in 6 chance of hearing something over a twenty minute period.

The antenna is a simple device as shown per drawings. Face it towards Jupiter and good luck. Kelly Hellyer. (Kelly has just joined BARG and will be attending our Novice course starting soon at BRACE. Good luck Kelly tks for the article Ed.)

① 66 inches of wire

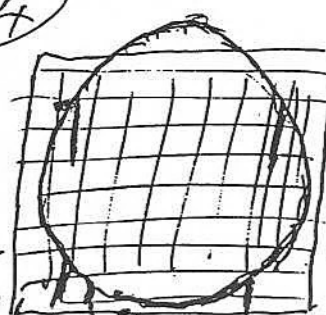
② Bend to 21" approx diameter

③



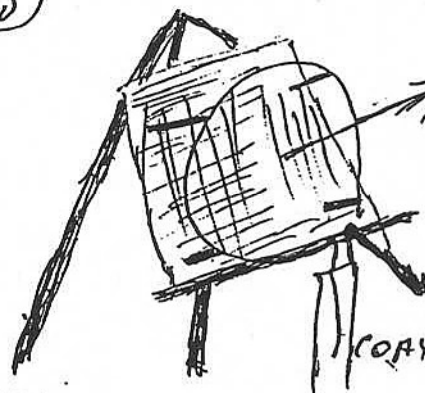
12"
tape 4 wood or plastic sticks to the loop, then tape sticks to mesh so the loop is 12" above mesh

④



attach center conductor of coax to loop, get outer to mesh

⑤



JUPITER

The screen should be slightly larger than the loop

50 ohm coax

to receiver

COAX TO RECEIVER

PUT ANTENNA ON AN BASEL and POINT AT JUPITER

DESIGN BY BOB SICKLES SOCIETY OF AMATEUR RADIO ASTRONOMERS P.O. BOX 6319, LONG ISLAND CITY N.Y. 11106.

MINUTES OF GENERAL MEETING HELD ON 25th JANUARY 1991.

91/0205

MEETING OPENED at 8.00pm by Vice President Tom VK3 TOM.

APOLOGIES VK# CFH,BNC,CIS,WN,DS,AEX,VU.

MINUTES of November meeting were read and confirmed. KGC/DCS.

CORRESPONDENCE IN WIA Western Zone suggesting frequency change for RBS and questioning necessity for repeater on Mt. Ben Nevis.

WIA Western Zone minutes from their last meeting.

Ballarat Courier requesting assistance with Begonia Run.

Dick Smith asking for price of advertising in newsletter.

TREASURERS REPORT General a/c \$383.95. VS&L a/c \$2424.15.

Accounts amounting to \$162.00 passed for payment.KGL/CAZ.

QSL MANAGER Jeff PAP received 150 cards in.

CLUB NET Charley DCS is looking for more support now holidays are over.

NEWSLETTER Articles still urgently needed.

REPEATERS All operating well.No Problems.

AWARDS MANAGER Maury XEX had requests for 11 DX Widows awards.

WICEN Gordon KGC attended a Displan meeting and antennas for emergency use on 80mtrs 2mtrs and 70 c.mtrs are being erected.

GENERAL BUSINESS 2mtr Scramble is running again on Sunday evenings.

A Fox Hunt is held on Monday nights starting at the Education Centre Car Park at 7.30pm.

Paul TI has joined the RAAF and will be leaving the district we wish him every success in his new career.

It was resolved that we have a display of Amateur Radio Equipment at the Begonia Festival.Charley DCS is looking after this and it is hoped that all members will support this project.

It was moved by KGC seconded CCB that the Club will take part in the John Moyle Contest. carried.

MEETING CLOSED at 8.40pm.

73s Jim CFB.

#####

NEXT BARG MEETING Friday 22nd February 7.30pm at Education Centre.

COMMITTEE MEETING Monday 25th March 7.30pm at Education Centre.

#####

91/02 06

MINUTES OF GENERAL MEETING HELD 30th NOVEMBER 1990.

MEETING OPENED by President Ian AXH at 8.00pm with 42 members and visitors in attendance.

APOLOGIES VK3 TI,DS,NIZ,YMW,PAJ,IBM.

MINUTES of previous meeting as circulated were confirmed. TOM/BNC.

CORRESPONDENCE IN BRACE Newsletter.
Scouts Asscn.Thanks for participation in JOTA.
WIA Western Zone notice of meeting Lake Bolac.Dec 1st.

TREASURERS REPORT. General a/c \$638.46. VS&L a/c \$2424.15.
Accounts for \$217.64 passed for payment. KGL/DOC.

QSL BUREAU Jeff PAP has not received any cards in.250 sent out.

CLUB NET Reg CAZ reported that net was being well supported.

EDUCATION Ian AXH is planning to run another novice course starting in February if there are sufficient applicants,he will also be looking at the possibility of conducting a CW net for limited licence holders who wish to upgrade.

NEWSLETTER Editors Bob BNC and Harry KGL are still looking for material.

HAMVENTION Convener Kevin WN reported on the biggest and most successful Hamvention to date.The balance sheet was circulated and showed a healthy profit.

A motion of thanks to Kevin was passed with acclamation.

TECHNICAL Dick AEX reported that the WIA has approved the costing for the Ben Nevis repeater.

WICEN Gordon KGC reported that the WICEN exercise at Burrumbete was a great success and very well supported,it is hoped that another will be held in February.

GENERAL BUSINESS Merv KAW gave a rundown on the proposed Packet Repeater linking which will be going ahead in 1991.

Moved KGC seconded DOK that the 2mtr scramble continue through the holiday period. carried.

It was resolved that the Club conduct Foxhunts during the summer perion the first one to be on 10th December.

Scramble winners Ron XOA,Tom TOM,Charlie DCS were presented with prizes for their mammoth efforts.

President Ian thanked all members for their support and wished everyone and their families a very happy and safe Christmas.

MEETING CLOSED at 8.45pm,and a pie supper was enjoyed by all.

#####

73s Jim CFB.

NEXT BARG MEETING is on Friday 25th January at Education Centre. 7.30pm.

VERTICAL ANTENNAS

9/1/02 07

WAVELENGTH		OHMS		CAPACITANCE in P'FADS						ANTENNA HEIGHT in MM's					
DEG.	FRAC'N	R/R	Xc	160M	80M	40M	20M	15M	10M	160M	80M	40M	20M	15M	10M
144	0.4	600	Res	----	----	----	----	----	----	63400	31700	16154	8047	5365	3993
135	0.375	300	200	450	220	112	55	37	20	59440	29720	15090	7560	5030	3750
113	0.315	90	80	1125	550	260	130	94	70	49680	24870	12620	6310	4206	3140
103	0.3	72	60	1500	730	375	185	125	92	47550	23775	12195	6096	4023	2987
99	0.275	50	25	3600	1750	900	444	300	220	43586	21794	11065	5517	3688	2743
x 90	0.25	36	1/4 WAVELENGTH SHOWS ONLY RADIATION RESISTANCE (R/R)							39624	19812	10058	5030	3353	2500
THE ABOVE ANTENNAS (Except 90 DEG) NEED CAPACITANCE. ANTENNAS BELOW (Less than 90 DEG) REQUIRE INDUCTANCE															
45	0.125	12	x USE FORMULA BELOW TO CALCULATE INDUCTANCE							19812	9906	5030	2515	1676	1250

THIS TABLE WAS USED VERY SUCCESSFULLY TO DESIGN ANTENNAS FOR A RADIO CLUB AT BALLARAT NORTH. THE ORIGINAL CHART WAS DISCOVERED BY BOB VK3BNC FROM A NZ PUBLICATION, I THINK. USING THE FIGURES, GEOFF VK3AOB AND I BUILT ANTENNAS FOR THREE DIFFERENT BANDS, 10, 15 AND 20 METRES. CONTACTS WERE MADE ALL OVER USA AND EUROPE, AND WEEKLY SKEEDS WERE HELD WITH ANJO HIGH SCHOOL IN JAPAN. I LOST THE ORIGINAL, BUT FORTUNATELY KEPT SOME NOTES, AND THE TABLE ABOVE IS DEVELOPED FROM THEM. AN EXPLANATION OF THE CHART: THE LEFTMOST COLUMN SHOWS THE ANTENNA HEIGHT IN DEGREES. THE SECOND COLUMN GIVES THE SAME HEIGHT AS A DECIMAL FRACTION. THE THIRD COLUMN IS THE THEORETICAL RADIATION RESISTANCE (R/R) AT THE INPUT (BASE) OF THE ANTENNA. THE FOURTH COLUMN SHOWS THE CAPACITIVE REACTANCE TO BE EXPECTED FROM THE ANTENNA. THE NEXT SIX COLUMNS SHOW THE VALUE OF THE CAPACITANCE FOR THE FOOT OF OF THE ANTENNA. THE OTHER SIX COLUMNS GIVE THE LENGTH OF THE ANTENNA IN MILLIMETRES - EASY TO CONVERT TO METRES. EXAMPLE: SAY THAT A 10-METRE (28 MHZ) ANTENNA IS REQUIRED TO MATCH A 50 OHM COAX LINE:---

- 1). RUN DOWN THE R/R COLUMN UNTIL 50 OHMS IS REACHED (OPPOSITE 99 DEGREES)
- 2). MOVE HORIZONTALLY TO THE 10M (TEN METRE) COLUMN AND FIND 220 PICO FARADS, THE NECESSARY CAPACITANCE.
- 3). MOVE FURTHER HORIZONTALLY TO THE SECOND 10M COLUMN AND FIND THE HEIGHT OF THE ANTENNA - 2743 MM (9.0 FEET EXACTLY)

TO FIND THE CAPACITANCE OF A SHORT VERTICAL ANTENNA, FROM WHICH YOU CAN CALCULATE THE INDUCTANCE NEEDED TO COMPENSATE, A FAIRLY COMPLEX FORMULA IS USED. (SUCH SHORT ANTENNAS ARE NOT AS EFFICIENT AS THE LONGER ONES ABOVE)

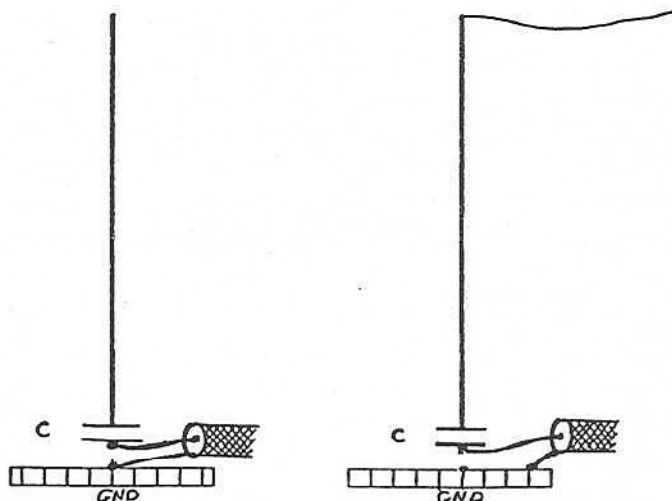
WHERE L = ANTENNA HEIGHT IN METRES
 D = DIAMETER OF ANTENNA IN MM
 F = FREQUENCY IN MEGAHERTZ
 C = CAPACITANCE IN PICAFARADS

$$C = \frac{56 L}{\left[\left(\log_e \frac{2000 L}{D} \right) - 1 \right] \left[1 - \left(\frac{FL}{71.32} \right)^2 \right]}$$

A KEY TO THE SUCCESS OF VERTICAL ANTENNAS IS THE GROUND PLANE.
 THE ONE USED HERE FOR ALL ANTENNAS CONSTRUCTED WAS A METAL ROOF.
 IF NO ROOF, THEN AS MANY RADIALS AS POSSIBLE SHOULD BE USED.

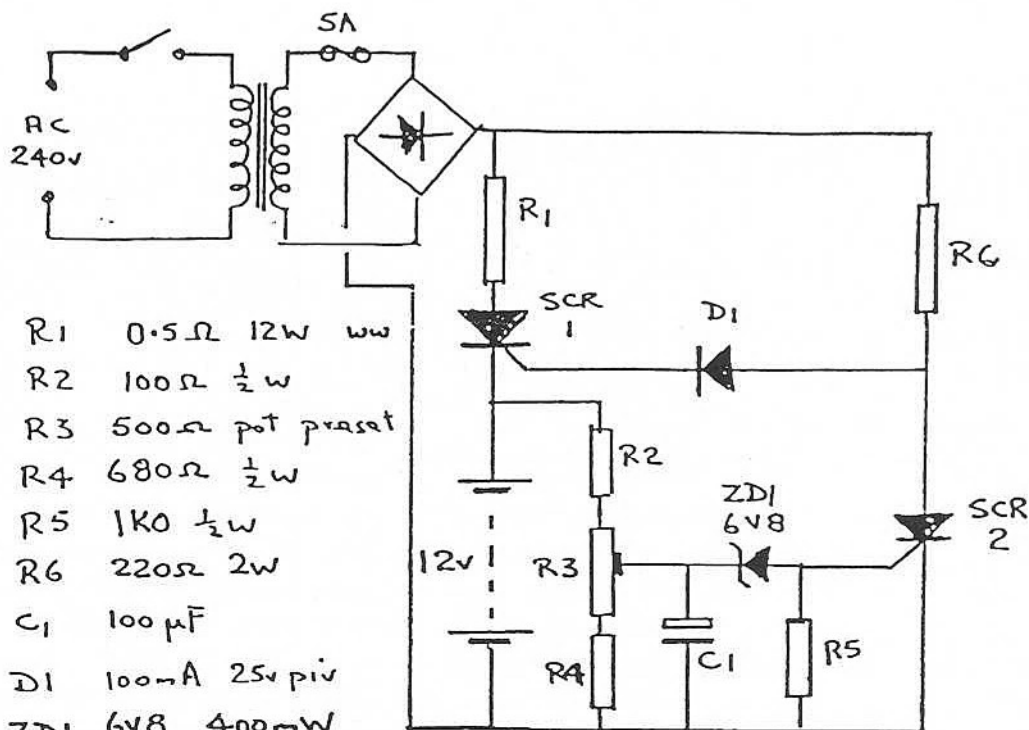
THE ILLUSTRATIONS ON THE RIGHT SHOW TWO METHODS OF ERECTING THE ANTENNA. THE FIRST SHOWS THE NORMAL VERTICAL OVER A GROUND PLANE WITH CAPACITANCE AT THE BASE. THIS IS A NORMAL VERY GOOD LOW-ANGLE ANTENNA - GOOD FOR DX.

THE SECOND VERSION IS FOR THOSE OCCASIONS WHEN YOU CANNOT GET ENOUGH VERTICAL HEIGHT: WHEN IT MAY BE IMPOSSIBLE TO ERECT A 160 METRE OR 80 METRE AS ONE VERTICAL POLE. GO AS HIGH VERTICALLY AS YOU CAN AND THEN TAKE OFF HORIZONTALLY. VK2CLM



9/1/0208

SELF REGULATING BATTERY CHARGER



R1 0.5Ω 12W ww
 R2 100Ω ½W
 R3 500Ω pot preset
 R4 680Ω ½W
 R5 1KΩ ½W
 R6 220Ω 2W
 C1 100μF
 D1 100mA 25V piv
 ZD1 6V8 400mW
 SCR1 5A 50V piv
 SCR2 1A 50V piv

If like me you tend to forget to check the state of charge of your standby battery for the rigs you are in good company and might like to try this circuit. When first connected to a battery of less than the desired output voltage as determined by the setting of R3 there will be no gate current to SCR2 so it is non conducting and therefore SCR1 is triggered on via D1 and R6 at the start of each halfcycle and a high current flows via R1 and the SCR to the battery. R1 is adjusted if necessary to give the desired charge rate. As the battery reaches a full charge state it will cause SCR2 to conduct by triggering via ZD1. As SCR2 comes on it pulls the junction of D1 and R6 towards the lower supply rail removing the gate supply to SCR1 and so the battery charge current reduces to zero. As the battery terminal voltage decays with the cessation of charging it will turn off SCR2 due to the zener diode ceasing to conduct. This will permit the main SCR to be triggered again and "top-up" the battery. The battery will "cycle" by a few tens of millivolts around the value set by R3. Setting up is merely a matter of connecting a fully charged battery across the circuit and adjusting R3 to just cease charging.

VK3CAZ

FOR SALE

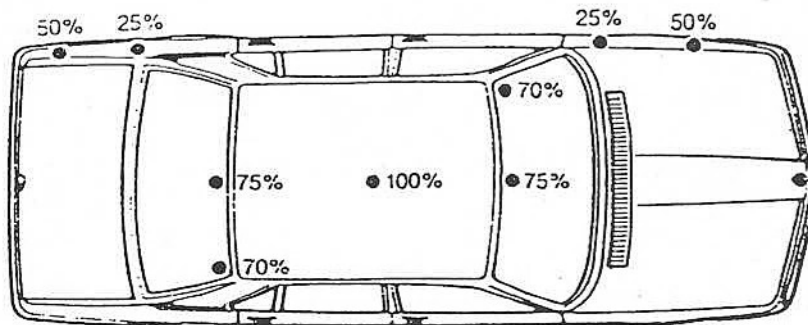
Packet Radio station. Complete with the following items; Commodore C64, 1541 Disk drive, Monitor, Packet modem and software. \$380.00. Bob VK3BNC. Ph. A/H. 395317. B/H. 391001.

IC-730 H.F Transceiver. Good working order with hand mike. \$650.00. Ernie. VK3DET. Ph. A/H 317604.

Antenna locations

9/1/02 09

It is required that mobile antennas be omni-directional i.e. that they provide equal performance in all directions in the horizontal plane. The antenna location has a significant effect on the directional characteristics of the antenna and hence the overall performance of the mobile telephone. Below illustrates the relative performance levels of some common antenna locations.

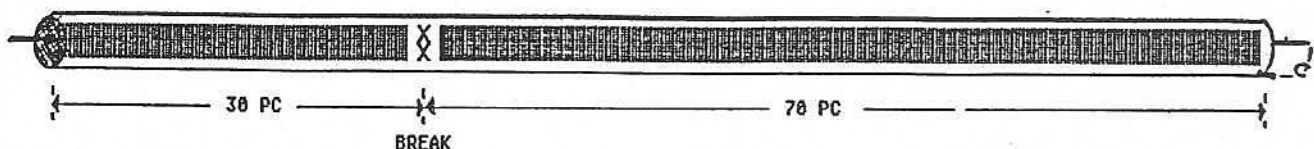


F O R S A L E

2MX FM 25WATT TRANSCEIVER CH2,3,8 & 40	\$100
SONY SL-C6 BETA VCR (WITH FEW BLANK TAPES)	\$150
B/W T.V. CAMERA SUITABLE FOR ATV (2 LENS)	\$100
B/W T.V. CAMERA SLIGHT FAULT (WORKING)	\$ 25
* 27MHZ AM/SSB CB TRANSCEIVERS (3 UNITS)	\$ 50 EACH *
FREQUENCY COUNTER 0-300MHZ	\$100
2 MX SSB TRANSVERTER 28-144MHZ 25WATTS PEP	\$100
432MHZ MICROWAVE MODULE 28-432MHZ TRANSVERTER	
COMPLETE WITH SATELLITE FREQUENCIES	\$200

ALL PRICES ARE NEGOTIABLE
PLEASE CONTACT VK3AXH
(311317 WORK) OR ON THE AIR

THE BROKEN CABLE



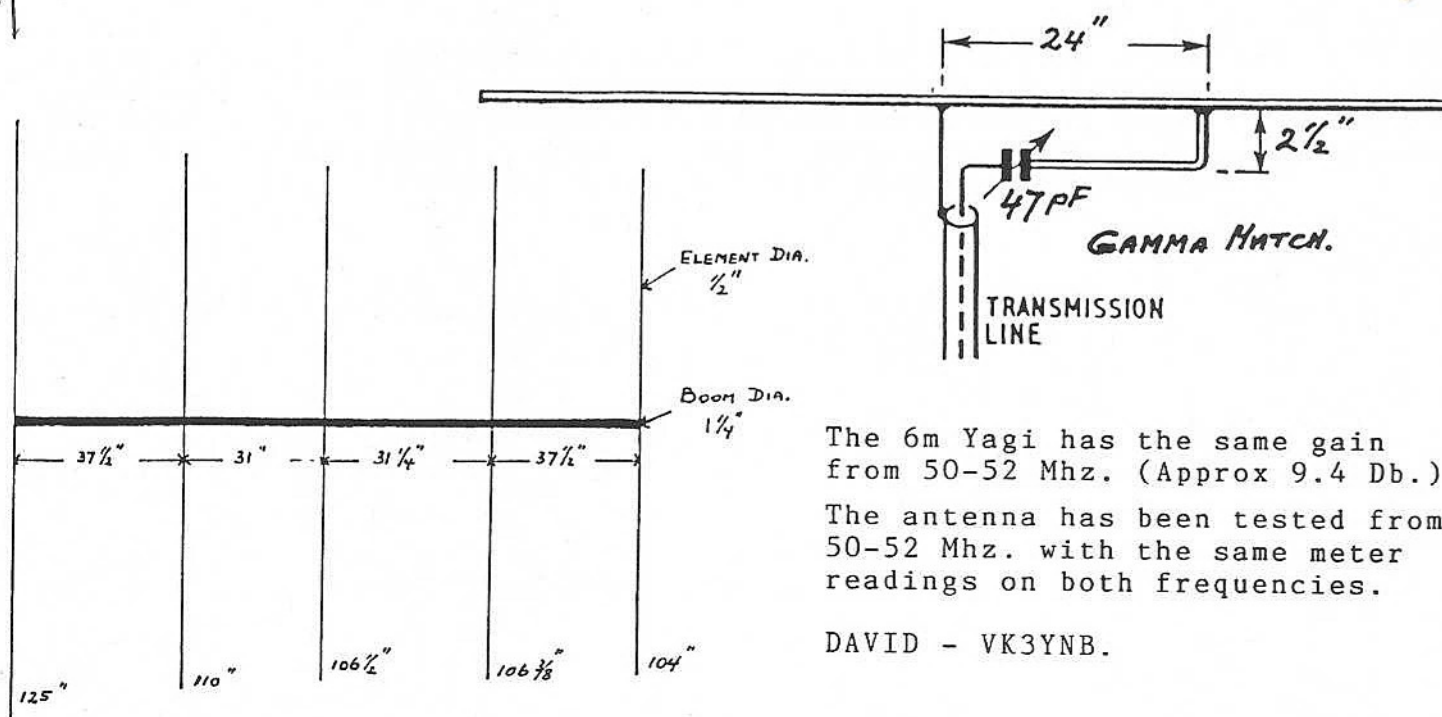
The coaxial cable is broken - but where?.... The solution---

Connect a capacitance meter to each end (between core and braid) and measure the two capacitances. Add the two values together, and place the smaller of the two over the total, to form a fraction. The break will be that distance in from the end. Example: The above cable is exactly ten feet long. The meter measures 140 pf at one end and 60 pf at the other. The total is 200 pf. Place the 60 over the 200 to make a fraction $3/10$. The break is $3/10$ or 3 feet from one end. These figures are only an example, as if the cable is RG58 then the capacitance value will be 28 pf per foot, handy for making low value, high voltage capacitors.

VK2CLM

9/1/02 10

6m - 5 El. YAGI



RESTORING WOODEN RADIO CABINETS

I have been restoring old valve radios over the past few years and have found the need for a cleaner/polish/restorer which would be suitable for the wooden cabinets.

Many of the old radios that you can uncover at conventions, garage sales etc do not need to have their cabinets stripped completely to bare timber but only really need to have the years of grime and bird droppings etc cleaned off.

After trying a lot of the commercial preparations I found the following recipe in an old furniture restoration manual. It fulfils the requirements of both a cleaner and a polish in that it removes the grime very easily and provides a surface finish that is resistant to finger marks. (most important at this QTH) Coupled to these advantages it has a pleasant odour and is reasonably friendly to the environment (i.e. we know what's in it). You can make it up as follows:

- 1 part of boiled linseed oil
- 1 part vinegar
- 1 part of mineral turpentine
- 1/4 part of methylated spirits

Be sure to keep well shaken while using it as it tends to separate into it's components and use a dry cloth to buff up the surface when finished.

73's,

Dick Forrester VK3UU

9/02 11

Maidenhead Grid Square Locator Software

Based on the small GW-BASIC articles in Amateur Radio Dec '90 and Jan '91, but converted to Turbo Pascal, and able to be run as an executable file.

Both have been incorporated, and feature significant input error checking along with a pleasant visual display. It will determine a locator square given co-ordinates, as well as the distance between two squares.

This software is available free of charge, (please enclose a blank formatted disk and return postage) and will run on any MS-DOS system making use of color if detected. I can support all disk formats.

Mr. Steven J. Merrifield VK3MBO
c/- Post Office
Newlyn 3364

REPEATERS: VK3RBA - 146.750 Voice. Mt. Buninyong (ch.3)

VK3RBS - 146.900 Voice. Smeaton Hill (ch.6)

VK3RPC - 147.575 Packet. Mt. Warrenheip.

CLUB NET: ON 3.610 Mhz SSB +/- QRM.

Every Thursday at 8PM.

MEETINGS: Held every last Friday of

month at 7.30PM. in the

Ballarat Community Education Centre

Hopetoun St.

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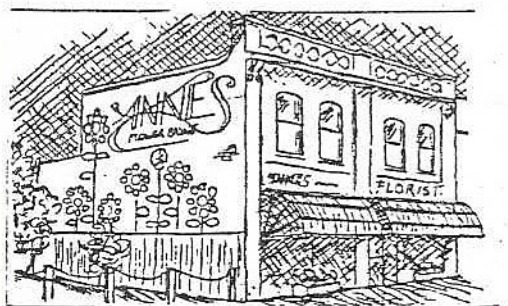
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